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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,617	10/03/2006	Cindy Blondine Andre Stuer	NL 040425	1680
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EXAMINER				
RALEIGH, DONALD L				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/599,617

**Applicant(s)**

STUER ET AL.

**Examiner**

DONALD L. RALEIGH

**Art Unit**

2879

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-9 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CIS)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date 05/30/2007.

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Response to Amendment***

The Amendment, filed on October 3, 2006 has been entered and acknowledged by the Examiner.

Claims 1-9 are pending in the instant application.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Anami et al (US PG Pub. NO. 2005/0052139).

Regarding Claim 1, Anami discloses, at least in Figures 1 and 2, a high pressure sodium lamp ((Paragraph [0045], Claim 1 (line 12)) having a nominal power  $P_{la}$ , which is suitable to be operated at a very high frequency (VHF), having a discharge tube (20) with a ceramic wall (Paragraph [0032], last 2 lines) and an internal vessel diameter  $D_{int}$ ,

Art Unit: 2879

enclosing a discharge space in which a pair of electrodes (33a,33b) at a mutual electrode distance  $e_d$  and a filling of Na- amalgam with a sodium mol fraction (smf) (sodium halide), characterized in that the discharge tube (20) has a ratio  $e_d/D_{int}$  between about 5.5 and 4.0.

(Paragraph [0045], Claim 1, line 9)  $4 < L_e/D \leq 5$  where  $L_e$  = electrode distance and  $D$  = vessel diameter.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anami in view of Niimi (US Patent No. 6,791,267).

Regarding Claim 2, Anami fail to exemplify the high pressure sodium lamp characterized in that the wall thickness (wt) is  $0.4 \leq wt \leq 0.6$  mm.

Niimi teaches a high pressure discharge lamp (abstract, line 1) with a ceramic chamber (Column 9, line 66) and with a wall thickness of the chamber of .55mm (Column 9, line 52) in order to improve the condensing efficiency of the projected light (Column 2, lines 42-46).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the thin wall as taught by Niimi into the lamp of Anami in order to improve the condensing efficiency of the projected light.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anami in view of Geijtenbeek et al (US Patent No. 6,525,476).

Regarding Claim 3, Anami fails to exemplify the high pressure lamp characterized in that the lamp has a wall load of at most 30 W/cm<sup>2</sup>.

Geijtenbeek teaches a high pressure (metal halide (Column 1, line 11) lamp using sodium (Column 2, line 47 (Na)) with a ceramic chamber (Column 2, line 65) and a wall of load of no more than 30 W/cm<sup>2</sup> (Column 2, lines 58-60) in order to counteract thermal stresses in the wall of the discharge vessel.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the wall loading, as taught by Geijtenbeek into the lamp of Anami in order to counteract thermal stresses in the wall of the discharge vessel.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anami in view of Keijser et al (US Patent No. 5,153,482).

Regarding Claim 5, Anami fails to exemplify the high pressure sodium discharge lamp characterized in that the filling also comprises Xe having a pressure at room temperature in the range of  $400 \text{ mbar} \leq p_{\text{Xe}} \leq 1000 \text{ mbar}$ .

Keijser teaches a high pressure sodium discharge lamp (title) characterized in that the filling also comprises Xe having a pressure at room temperature in the range of  $400 \text{ mbar} \leq p_{\text{Xe}} \leq 1000 \text{ mbar}$ . (Column 3, lines 52-54)(530 mbar at 300K (room temp.)).(The discharge vessel is ceramic (Column 3, line 16)). Keijser provides these parameters in order to provide a lamp with which light can be radiated having a color temperature considerably higher than 2400K and a color rendering index of  $>80$  (Column1, lines 37-40).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the pressure parameters as taught by Keijser into the high pressure discharge lamp of Anami in order to provide a lamp with which light can be radiated having a color temperature considerably higher than 2400K and a color rendering index of  $>80$ .

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anami in view of Jackson et al (US PG Pub. No. 2005/0073256).

Regarding Claim 6, Anami fails to exemplify the high pressure sodium discharge lamp characterized in that the electrodes are provided with emitter and that each of the

electrodes has an electrode diameter, which specified relatively to the average lamp current (I<sub>la</sub>) at nominal lamp power fulfils the relation:

$$0.2 (D_{\text{electrode}})^2 / I_{la} < 0.45, \text{ preferably } 0.25 < (D_{\text{electrode}})^2 / I_{la} < 0.35.$$

Jackson teaches a high pressure discharge lamp (abstract, lines 1-2) using sodium (Paragraph [0003], line 2 (NaI)) characterized in that the electrodes are provided with emitter (Paragraph [0002], lines 15-16 (emits light) and that each of the electrodes has an electrode diameter, which specified relatively to the average lamp current (I<sub>la</sub>) at nominal lamp power fulfils the relation:

$$0.2 < (D_{\text{electrode}})^2 / I_{la} < 0.45, \text{ preferably } 0.25 < (D_{\text{electrode}})^2 / I_{la} < 0.35.$$

Jackson teaches in Figure 6 a graph of the relationship between the lamp current and the electrode diameter in order to provide a lamp with superb stability over life (Paragraph [0007], lines 1-4). Looking at the graph with an electrode diameter of 0.6mm and a lamp current of 1.5, the above formula becomes:  $(D_{\text{electrode}})^2 / I_{la} = (.6)^2 / 1.5 = .24$  which satisfies above formula  $0.2 < .24 < 0.45$ .

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the electrode and current limitations into the lamp of Anami in order to provide a lamp with superb stability over life.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anami in view of Vegter et al (US Patent No. 4,970,431).

Regarding Claim 7, Anami fails to exemplify the high pressure discharge lamp characterized in that the lamp emits light in nominal operating condition with a color temperature  $T_c$  of at most 2500K.

Vegter teaches a high pressure sodium discharge lamp (title) characterized in that the lamp emits light in nominal operating condition with a color temperature  $T_c$  of at most 2500K. (Column 4, lines 32-34, (2400K)) to provide a lamp of smaller dimensions of the discharge arc at a given color temperature and a given power and still maintain efficiency (Column 1, lines 55-60).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the color temperature taught by Vegter into the lamp of Anami to provide a lamp of smaller dimensions of the discharge arc at a given color temperature and a given power and still maintain efficiency .

Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anami in view of Blau (US PG Pub. NO. 2004/0051472).

Regarding Claim 8, Anami fails to exemplify the lighting system comprising a full electronic VHF driver for operating a lamp.

Blau teaches in the abstract, line 1, a full electronic VHF driver (electronic ballasts) for operating a lamp (gas discharge lamp). Paragraph [0004], lines 1-2 teaches using the driver with a sodium lamp in order to convert the AC line power to a higher frequency to drive the lamp.



It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the electronic driver taught by Blau into the lamp of Anami in order to convert the AC line power to a higher frequency to drive the lamp.

Regarding Claim 9, Anami fails to exemplify the lighting system wherein the VHF ballast is provided with resonant ignition means by which resonant ignition is applied on igniting the lamp.

Blau teaches wherein the VHF ballast (abstract, line 1, electronic ballast) is provided with resonant ignition means by which resonant ignition is applied on igniting the lamp. (abstract, lines 6-9, resonant frequency for starting the lamp), in order to compensate for the cyclic low voltages of the AC power line (abstract, lines 11-15).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the VHF ballast taught by Blau into the lamp of Anami in order to compensate for the cyclic low voltages of the AC power line.

***Allowable Subject Matter***

Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance.

Regarding Claim 4, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set fourth in Claim 4, and specifically comprising the limitation of " a high pressure sodium lamp characterized in that: -

$0.2 \leq ed/Pla \leq 0.35$ ; (where  $ed$  is the electrode separation)

- an amalgam composition with  $0.6 < smf < 0.75$ ; (where  $smf$  is sodium mole fraction)  
the ratio internal discharge vessel diameter  $D_{int}$  to the nominal lamp power  $Pla$  is

$0.045 \leq D_{int}/Pla \leq 0.08$ ;

- the wall thickness ( $wt$ ) is  $0.4 \leq wt \leq 0.6$  mm.

### ***Conclusion***

Examiner's note: Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DONALD L. RALEIGH whose telephone number is (571)270-3407. The examiner can normally be reached on Monday-Friday 7:30AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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